Response to California Consumer Power and Conservation Financing Authority
August 30, 2002

Overview

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on the Notice of Rulemaking 2002-07-01 Establishment of Target Reserve level for the California Power Authority Investment Plan dated July 24, 2002 and looks forward to working with the California Consumer Power and Conservation Financing Authority (CPA) in this proceeding. PG&E agrees that with the restructuring of the electric industry in California, there is a need to evaluate in the appropriate forum the establishment of a Reserve Margin (RM) to ensure that adequate resources are available to meet electricity demand. While it is appropriate for the CPA to evaluate the appropriate RM to be used for its planning and investment objectives, it is important that this effort be coordinated and consistent with the ISO and FERC efforts in this area.

As discussed in the Notice, the California electricity industry has changed substantially since California utilities were last required to maintain reserves. Investor-owned utilities (IOU) no longer control most of the resources used to meet their customers requirements, and bilateral agreements for IOU and direct access energy procurement now constitute a substantial portion of the resources serving load. The California Independent System Operator (CAISO) has proposed substantial changes to operation of the electricity markets that must be considered in establishing the RM requirement, and the very existence of an independent entity operating the electricity grid must be considered when establishing system-wide and individual utility requirements. Given these fundamental changes in the market, PG&E believes an appropriate process at the FERC and ISO level is required to properly determine what is "resource adequacy" and how the RM should be implemented. Specifically, the determination of the RM should include examination of:

- Planning Process, Participants and Participant Roles
- Integration of Regional and State Planning
- Consideration of the Economics of Reserve Margins
- Establishment of Planning Methodology
- Applicable Resources in Reserve Margin Planning

Planning Process Participants and Roles

Prior to California electric market deregulation the California Energy Resources Conservation and Development Commission (CERCDC) was responsible for assessing statewide load and resource adequacy in its biannual Electricity Report (ER). In its Market Design 2002 Proposal (MD02) the CAISO proposed that beginning in 2003 all LSEs in California market participants be subject to an Available Capacity (ACAP) requirement, though the requirement was not explicitly defined. Subsequently, the Interstate Working Group proposed an alternative proposal. The July 31, 2002 Federal Energy Regulatory Commission (FERC) Notice of Proposed Rulemaking on Standard Market Design (SMD) proposes that each region establish a Regional State Advisory Committee (RSAC), which will establish the appropriate planning horizon and will establish the reserve margin for the

region. (SMD, ¶523) The SMD proposes regional Independent Transmission Provider(s) (ITP) determine the load forecast for the region. Any efforts the CPA may take in establishing a RM planning process should be in coordination with the FERC process.

PG&E believes the CPA, CAISO, CERCDC, California Public Utilities Commission (CPUC), Western Electricity Coordinating Council (WECC), California LSEs in the CAISO and non-CAISO participating LSEs (i.e. Los Angeles Department of Water & Power) all play an important role in ensuring the stability of the electric grid in California and must be participants in any RM planning process. PG&E will willingly work with all parties to develop appropriate and cost-effective reliability requirements and resource procurement to ensure adequate resources are available to meet peak and energy demand.

Regional Coordination

PG&E recognizes that CPA seeks to ensure that sufficient generation is available to meet electricity demand in the state under a range of possible conditions. In analyzing the appropriate reserve margin target, CPA must recognize the interconnected nature of the electricity system in the western United States, and that the requirement is most effective if developed in coordination with other states in the region. If California plans solely for its own peak demand requirements it may not properly recognize resources that may be available to it from other regions or, conversely, not consider resource adequacy in other states in the region at the time of their peak demand.

Balancing the Benefit-Costs of the Reserve Margin

PG&E believes in assessing the adequacy of a RM target, a benefit-cost analysis be performed. This could take the form of a Value of Service analysis used historically in ER proceedings. Assessing a high RM target will likely result in increased competition in the energy market, lowering overall energy costs and price volatility and reducing opportunities for the exercise of market power in peak demand hours, as so painfully prevalent in the California market in 2000 and 2001. This reduction in costs however, must be balanced with the likely increase in capital investment in generating plants that will be required. Further, PG&E is concerned that the adoption of a high RM target could result in an exercise of market power by developers as new demand for capacity is suddenly introduced into the market.

Establishment of Planning Methodology

The development of an appropriate criteria is of paramount importance. Historically California utilities planned to an expected 1-day in 10-year criteria. Examples of other methodologies that are used in other regions in the United States include the use of a calculated Loss of Load Probability (LOLP), expected Contingency criteria and Value of Service.

Whichever methodology is chosen, the ultimate reserve margin determination should include some engineering judgment. The calculation of reserve margins will include numerous assumptions, most significantly regarding demand and conservation, weather and the technical capability of resources, and it is important that judgment be used to ensure the individual and aggregate assumptions are appropriate.

Below are some of the methodological issues that must be resolved to in order to establish a reserve margin requirement:

1. On what basis should the RM be established – Annual peak? Monthly? Seasonally?
2. Should there be a monthly energy reserve margin? Energy margins can be a concern in northern California in the late summer and fall of a dry hydro year.
3. Should there be different RM requirements for different regions of the state based on transmission constraints?
4. Should the RM assessment be evaluated on a utility specific basis or for the entire state?
5. Should RM be based on total projected demand? Net of direct access and CLM impacts? Net of losses?
6. What methodology should be used – 1-day in 10-year? LOLP? Amount of un-served energy? First contingency?
7. What criteria will be used to determine the appropriate methodology?

Assumptions Used in Reserve Margin Planning

In addition to establishing a methodology to determine any RM target, consider what assumptions will be used in establishing demand and what criteria will be used to determine whether generating resources, demand management, and contracts are eligible to meet the RM requirement. This task is substantially different than it was prior to deregulation since probably all of the incremental generation anticipated to meet the RM is merchant owned and not under the control of LSEs, and information regarding unit characteristics and operating requirements may be limited or unavailable. Further, there are an abundance of contracts for energy sales between LSEs and generators, LSEs and marketers, and inter-utility contracts that may not have defined "capacity" associated with them, hence we may need to find a new method to determine how and if the RM criteria is met.

Below is a list of critical issues, in addition to those issues already identified by CPA in the Notice of Proposed Rulemaking, regarding demand and resources that will need to be resolved prior to assessing the RM target. PG&E notes these issues are not discrete – many of these issues will need to be considered in conjunction with methodological issues discussed above.

1. Weather conditions: Hydro conditions: assume "average" year?, average of several dry year?, or critical dry year?. Temperature conditions: assume median high temperatures? or extreme heat wave?
2. CDWR Contract Resources: Many of the CDWR contracts do not specify specific generating resources providing the energy. How can this capacity be counted towards a capacity RM assessment?
3. Thermal Resources
   a. Can thermal resources be included as capacity resources at their nameplate capacity? Output based on temperatures that occur at the time of the peak load? De-rated for expected outages?

b. How should thermal units with operating constraints (environmental, limited operating hours or number of starts) be considered?

4. Hydro Resources: Should hydro resources be included as capacity resources at their maximum nameplate capacity? De-rated to reflect expected seasonal capacity limits?
5. Renewable Resources: (Wind, Solar, Small Hydro) What weather conditions are appropriate in determining their ability to meet the RM target?
6. Imported Energy Resources: Can non-resource specific imports and energy swaps be counted toward the RM target? Should projected short-term imported energy (i.e. Northwest hydro during spring months) be counted towards satisfying the RM target?
7. Transmission: How will resources without "firm" transmission from generation point to delivery point be treated?

Specific Issues Raised in the Notice of Proposed Rulemaking

In the Notice CPA identified five issued that should be considered in forming an appropriate reserve level. These are provided below, each followed with PG&E's initial thoughts on the issues. As the Rulemaking proceeds PG&E will continue to provide its comments on specific questions as they arise.

1. ***Considering the fundamental difference between the current generation market and the past, does the historic reserve level reflect the greater reliability risks of the present and future?***

   PG&E believes the historic reserve level and RM assessment methodology have little bearing on the current and future, and CPA should not be tied to the historic methodology used to assess Reserve Margins. As CPA has noted, the industry is substantially different today than it was prior to deregulation. The shift from an industry composed predominately of vertically integrated utilities serving load to a structure of many entities serving load with resources procured through bilateral contracts fundamentally changes the character of the system. Further, the mix of resources has also changed. Generating units historically were large central-station plants, while new plants tend to be smaller and more distributed. Additionally, newer plants generally have greater reliability.

2. ***Given the recent cancellation and delays, and the uncertainty of the financial community, how many of the proposed plants will actually come on line, and under what terms and conditions?***

   While concerned that many announced units, which would add reliability and diversity to the electricity system, may not come on-line it is impossible for PG&E to provide any specific comments on the probability of future additions.

3. ***What will the lingering effects of behavioral conservation be, and what are the permanent effects?***

PG&E has not done any formal studies on this topic. In our opinion, the California Energy Commission (CEC) publications: *2002-2012 Electric Outlook Report*, *The Summer 2001 Conservation Report*, and a number of presentations and research papers that can be accessed on the CEC website @ http://www.energy.ca.gov/efficiency/behavior/ contain the best available research on the subject of conservation and consumer behavior.

4. ***What impact will the significant rate increases have on load and consumption patterns?***

PG&E has not done any formal studies regarding the effect of rate increases on load and consumption patterns. The models that PG&E uses to forecast energy consumption do include price response variables. Our current models estimate that energy price elasticity for most customer classes falls in the range of -.10 to -.20 in the short-term (within one quarter of price increase). Longer term response to price increases is, of course, more speculative. Given that demand for electricity is based on both behavior and the stock of appliances in place, medium to long-term price elasticity could be either above, equal to, or below the short-term estimates.

5. ***What impact will the new market design elements approved by FERC on 7/17/02 and those still pending have on system loads and procurement practices?***

The FERC 7/17/02 Decision considered only those elements proposed by the CAISO in its MD02 proposal that are to be implemented on September 30, 2002, leaving longer-term market design issues for subsequent ruling(s). It is PG&E's understanding the CAISO is currently working on the implementation plan for these elements. Until the implementation plan is complete it is difficult to determine what the impact of this decision will have on loads and procurement practices.

In addition to the market design elements discussed in 7/17/02 decision, the CAISO has proposed substantial changes to the structure of the California market, some of which differ with the FERC-proposed SMD. Until FERC has adopted the final SMD, and acted on the entire MD02 proposal, it is impossible to determine what impact these will have on loads and procurement practices. Any efforts that the CPA contemplates in this area should be carefully coordinated with the ISO and FERC processes.